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10/577,735	06/08/2006	Jonathan David Hares	550-752	5100

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EXAMINER	
YAM, STEPHEN K	

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2878	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,735	HARES ET AL.	
	Examiner	Art Unit	
	Stephen Yam	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,12-22,25 and 26* is/are rejected.

7)☒ Claim(s) *10,11,23 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20060502*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 4, 7, 14, 17, and 20 are objected to because of the following informalities:

Regarding Claims 4 and 17, line 3, "ac" should replaced with "an".

Regarding Claims 6 and 19, "independent time of gating signals" should be replaced with "independent time gating signals."

Regarding Claims 7 and 20, "radiation source" lacks proper antecedent basis.

Regarding Claim 14, "A method image intensification" should be replaced with "A method for image intensification" or "A method of image intensification".

2. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, 7, 12, 14-18, 20, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Riches et al. WO99/64911 (using national-stage US Patent No. 7,259,362 for reference purposes in this rejection).

Regarding Claim 1, Riches et al. teach (see Fig. 1-5) an image intensifier comprising: an optical splitter (BS) operable to split radiation received from a radiation source into a plurality of optical channels (see Col. 4, lines 24-26); a gated optical image intensifier (II) having a plurality

of image intensifying channels (see Col. 4, lines 28-32 and Col. 5, lines 20-25) operable to intensify radiation received from a respective one of said plurality of optical channels (See Col. 5, lines 20-25); and an electronic gating signal generator (generator of GP1-GP4) operable to generate independent time gating signals applied to respective ones of said plurality of intensifying channels such that said plurality of intensifying channels intensify radiation received from said radiation source at different times (See Fig. 3 and Col. 5, lines 20-25).

Regarding Claim 14, Riches et al. teach (see Fig. 1-5) a method image intensification, said method comprising the steps of: splitting (BS) radiation received from a radiation source (source of illumination of (OB)) into a plurality of optical channels (seec 4, lines 24-26) with an optical splitter (BS); intensifying (II) radiation received from said plurality of optical channels within respective ones of a plurality of intensifying channels (see Col. 5, lines 20-25) of a gated optical image intensifier (II); and generating independent time gating signals (GP1-GP4) applied to respective ones of said intensifying channels such that said plurality of intensifying channels intensify radiation received (see Fig. 3 and Col. 5, lines 20-25).

Regarding Claims 2 and 15, Riches et al. teach said gated optical image intensifier is a unitary device (see Fig. 1) such that said plurality of image intensifying channels share common gain controlling parameters (since each gating pulse has identical amplitude and since each image-intensifying segment is identical).

Regarding Claims 3 and 16, Riches et al. teach said gated optical image intensifier includes a photocathode (PC) divided into a plurality of separately gated radiation receiving areas (see Fig. 5).

Regarding Claims 4 and 17, Riches et al. teach said plurality of separately gated radiation receiving areas are divided from each other by resistive strips so as to provide an electrical separation therebetween (See Col. 5, lines 21-23).

Regarding Claims 5 and 18, Riches et al. teach (see Fig. 5) said gated image intensifier includes a gating signal electrode (CS) disposed adjacent said photocathode, said gating signal electrode being divided into a plurality of electrode portions (CS1, CS2, etc.) indexed with respective ones of said plurality of separately gated radiation receiving areas and operable to couple a gating signal thereto (see Col. 8, lines 61-66).

Regarding Claims 7 and 20, Riches et al. teach the radiation source as an illuminated object (OB) (see Fig. 1). Although Riches et al. do not recite the illumination by a pulsed laser source, the particular incorporated light source is external to the scope of "an image intensifier" and to a "method [for] image intensification" and thus is considered an intended use of the device and method, and thus, cannot be given patentable weight.

Regarding Claims 12 and 25, Riches et al. teach said optical splitter and said gated optical image intensifier each both comprise three or four channels (see Fig. 1-5).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 6, 8, 13, 19, 21, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riches et al. in view of Miwa et al. US Patent No. 5,772,588.

Regarding Claims 6, 8, 19, and 21, Riches et al. teach the device and method in Claims 1 and 14, according to the appropriate paragraph above. Riches et al. do not teach said electronic gating signal generator triggered to generate said independent time of gating signals by a shared trigger signal, with said shared trigger signal is synchronized with a pulsed laser source. Miwa et al. teach (see Fig. 8) a similar device with an electronic gating signal generator (11) generating a master initiation trigger signal, with the trigger signal synchronized with a pulsed laser source (1, 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide said electronic gating signal generator triggered to generate a shared/master trigger signal, with said shared trigger signal is synchronized with a pulsed laser source, as taught by Miwa et al., in the device and method of Riches et al., to provide synchronized stimulation of a sample for optimal image capture.

Regarding Claims 13 and 26, Riches et al. teach the device and method in Claims 1 and 14, according to the appropriate paragraph above. Riches et al. do not teach said image intensify is operable to perform one of: fluorescence correlation spectroscopy; imaging through diffuse media; image physiological electrical signals; endoscopic imaging; and histopathological imaging. Miwa et al. teach a similar device and method with an image intensify is operable to perform one of: fluorescence correlation spectroscopy; imaging through diffuse media; image physiological electrical signals; endoscopic imaging; and histopathological imaging (see Col. 5, lines 58-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide said image intensify operable to perform fluorescence correlation

spectroscopy; imaging through diffuse media; image physiological electrical signals; endoscopic imaging; or histopathological imaging, as taught by Miwa et al., in the device and method of Riches et al., to provide usage of the device and method in a medical application for improved biological imaging.

7. Claims 9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riches et al. in view of Lakowicz et al. US Patent No. 5,485,530.

Regarding Claims 9 and 22, Riches et al. teach the device and method in Claims 1 and 14, according to the appropriate paragraph above. Riches et al. do not teach said plurality of intensifying channels operable to intensify fluorescence radiation received from an object at respective times following excitation of fluorescence in said object so as to perform fluorescence lifetime imaging. Lakowicz et al. teach (See Fig. 8) a similar device and method with an image intensifying channel (208) operable to intensify fluorescence radiation received from an object at respective times following excitation of fluorescence in said object so as to perform fluorescence lifetime imaging (see Abstract and Col. 17, line 63 to Col. 18, lines 19 and Col. 19, line 61 to Col. 20, line 6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide said plurality of intensifying channels operable to intensify fluorescence radiation received from an object at respective times following excitation of fluorescence in said object so as to perform fluorescence lifetime imaging, as taught by Lakowicz et al., in the device and method of Riches et al., to provide usage of the device and method for specimen analysis, as taught by Lakowicz et al.

Allowable Subject Matter

8. Claims 10, 11, 23, and 24 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Regarding Claims 10, 11, 23, and 24, the invention as claimed, specifically in combination with said optical splitter dividing fluorescence radiation from said object in proportions such that those optical channels corresponding to intensifying channels that are gated to intensify later in said time gating sequence receive more of said fluorescence radiation, is not disclosed or made obvious by the prior art of record.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Paul GB 2322230, Harvey WO 95/14951, and Riches EP 701185 teach similar devices with image intensifiers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (571)272-2449. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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